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THE

BELFAST MONTHLY MAGAZINE.

No. 55.] FEBRUARY 28, 1813. [VOL. 10.

COMMUNICATIONS, ORIGINAL AND SELECTED.

For the Belfast Monthly Magazine.

The Upas tree having been alluded to in our last Number, the following account of it may be acceptable to our readers. It is extracted from the Third Fasciculus of the Belfast Literary Society, and was written by our ingenious countryman, D. B. Warden, and communicated by Dr. Stephenson.

THE effects of the *Upas Ticuti,*[*] the poison of Java, on the animal economy, have been lately ascertained by Dr. Delile, member of the Institute of Egypt, and Mr. Magendie, a young anatomist attached to the Medical School of Paris.[†]

This vegetable is of the genus *strychnos,*[*] a small natural family, having some relation to the *apocinus.*[†] Its juice in the form of extract, was brought from Java, by the naturalist Leschenault, and is the same with which the inhabitants of that country, and of Borneo, poison their arrows, to render the wound mortal.

A piece of wood, of the volume and form of a common writing pen, covered with the extract, was plunged into the muscles of a dog's thigh; in the course of a few minutes there was a general convulsion of all the muscles, and a complete tetanus;[‡] the members stiff, and the thorax during the paroxysm, motionless. The attack ceased for a few minutes, and was again renewed with redoubled force. The animal during the tetanus, preserves the use of its senses, except when the paroxysm is excessive, and suspends respiration. In touching, with the hand, the region of the heart, to ascertain the motion of the circulation, a general tetanus ensued. The same

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NOTES BY A MEMBER OF THE LITERARY SOCIETY.

[*] Not in Linnè's system of vegetables.

[†] In the 47th volume of the Philosophical Transactions, we have an account of two vegetable poisons, brought from the river Amazons, by Condamine, of which the South Americans of Lamas and Ticunas make the same use as the inhabitants of Java. The plants from which this extract is made are no otherwise described, than that the French name them Lianes. Dr. Herissant dissolved these two poisons together, and found when the solution was sufficiently evaporated, that the vapour became deleterious; it is innocent when taken into the stomach; it does not kill fishes, insects or reptiles, when inoculated with it, but is fatal to quadrupeds and birds: in these respects it is similar to the poison of vipers. The blood of animals killed with it was greatly determined to the lungs and the liver. Neither sugar nor salt are antidotes. Nothing but red-hot iron, applied in time, cures with sufficient certainty.

In the 70th volume of the Philosophical Transactions we have an account of the effects of the poison of Ticunas, by Abbe Fontana; he found by experiment that it had a similar effect upon quadrupeds and birds, and that it does not kill the cold blooded animals. The vapour of it when burnt, or in watery evaporation, is not injurious to any animal.

[*] Class, v. Pentandria. Order, 1. Monogynia, genus 397, of Linnè.

[†] Apocinum of Linnè.

[‡] A spasmodic rigour of the muscles.

effect took place in touching the head, paw, or tail. After a few minutes of repeated attacks, manifested by strong convulsive throes, tetanus is induced by the tension of the thoracic muscles, and this horrible torture then terminates in death.*

In opening the breast and abdomen of the dog, the arteries were filled with black blood, the common sign of asphyxia. The orifice of the *wound had assumed* a *yellow brownish* colour.† The same experiment was tried on a horse, several dogs, and rabbits, and with the same result, except that the animal, if strong and vigorous, resists a great number of convulsive attacks, but if weak, the third or fourth terminates in death.

This poison injected into the cavities of the serous membranes of the above mentioned animals, was speedily absorbed, and death ensued, after three or four tetanic throes.

If applied to the surface of an isolated nerve, the posterior crural, for example, it has no effect; but if put in contact with the spinal marrow, it instantly produces a tetanus of those muscles, which receive nerves from that part of the spinal marrow where the poison was applied, and this tetanus successively extends to the other muscles.

After it was ascertained, that its action depended on the insulated spinal marrow, it was retarded, or quickened at pleasure, by putting the poison into the vessels, in which the blood had a shorter or longer way to run, in order to arrive at the spinal marrow. The poison of the *Upas ticuti*, injected into the femoral artery, and passing through the capillary vessels of the thigh, before it returns to the heart, did not act half so promptly, as when injected into the jugular vein, by which the heart receives it suddenly, and afterwards transmits it to the spinal marrow.

Injected into the veins and arteries, it was taken up by the circulating system, and was immediately followed by the same fatal effects.

Mixed with the aliments of the stomach, its action is slower, and does not take place before the lapse of half an hour, and a greater portion is necessary to cause death, than in other cases; a dose of one fourth of a grain stimulates the spinal marrow, without injuring the functions of life.

Hence it is believed, that it might be employed as a useful medicine in those diseases which have their seat in this part of the nervous system.

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* Abbe Fontana found that a rabbit infected with the American poison, applied to the skin slightly scratched, began to shake in six minutes, and show weakness; in another minute, it fell down motionless; at intervals it appeared convulsed; and in six minutes more it was quite dead. He found that one hundredth part of a grain in solution was sufficient to kill small animals, and that it is not always fatal, nor in all circumstances.

† The American poison did not produce any alteration upon the appearance of the wound. When mixed with the blood of an animal it prevents coagulation, but does not dissolve the red globules; hence he asserts that its effects are not upon the nerves, but upon the blood. Livid spots were found upon the lungs, and they were often putrid. If any of the mineral acids are mixed with this extract, the poisonous quality is destroyed. It may then be taken into the stomach with safety, and applied by inoculation, without injury; but the mineral acids applied to the muscles of a poisoned limb were generally useless, and frequently dangerous. Vinegar and ardent spirits have no effect in destroying the poison.

In the before-mentioned paper, Fontana gave an account of his experiments with the distilled water of Laurocearasus, or Laurel-water, upon animals, and found that it was not mortal by inoculation, nor when forced into the blood by the jugular vein; but when taken into the stomach by any animal, even by the cold-blooded, it killed in an instant.

The family likeness which exists between the *Upas ticuti* and the genus *strychnos,* suggested the idea of trying the effects of some of its species, by administering a dose of a few centigrammes in an aqueous, or alkoholic extract, and they were found to be exactly the same.

The above mentioned experiments on the spinal marrow, were made by separating the *atlas* from the *occiput,* and injecting the poison into the vertebral canal. So powerfully does it stimulate the spinal marrow, that although the animal was apparently dead, still it produced three attacks of tetanus.

Mr Leschenault, in the relation of his voyage, will give a particular account of the vegetable which produces this poison, of which there are two species; the one already mentioned, the *Upas ticuti* and the *Upas antiar,* which travellers and writers have confounded under the well-known name of *Bohon Upas,* so long the favourite object of young poets and orators. They have lost a fine image: for it is now ascertained, that men and animals may not only approach this tree with impunity, but that it may be handled without danger, and its juice extracted. Mr. Leschenault brought with him a branch and leaves.* He says, that animals, wounded by the Indians in the chase, by poisoned arrows, are eaten by them without injury, having taken the precaution to cut away that portion of flesh, which environs the wound: a fact which was made credible by giving portions of rabbits, killed in this manner, to dogs and cats.

Doctor Delile announces in his thesis, that he will give a particular account of the effects of the *Upas antiar,* which is the strongest vomitive, and most powerful drastic yet known, and of course its effects are very different from those of the former. The species of *strychnos* that have not a bitter taste, the *strychnos potatorum,* and the *pomme de ventac* of Madagascar, are quite innocent.

Doctor Delile has made experiments to find out some means of counteracting the deadly effects of the *Upas ticuti.* Dogs apparently dead, by the immobility of the respiratory muscles, were restored to life by artificial respiration; air was injected into the lungs by means of a syringe, for more than an hour, during which time several fits of tetanus were manifested, and the animal at length revived. It was proved, that opium and marine salt were of little, or no use.

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* This alludes to the fabulous account of the Upas tree, published in a London Magazine, for the year 1783 or 1784, and copied into the notes upon Darwin's Botanic Garden, under the third Canto of the Loves of the Plants. The effects of this tree have been so poetically described, that the whole has been thought a fiction; but the French philosophers have demonstrated its existence, and, by experiment, shown the effects of its juice upon the animal economy. Although in certain circumstances a poison, it may be used as a remedy in some nervous diseases. "The poison of Java is said by its effluvia, to have depopulated the country for twelve or fourteen miles round the place of its growth; it is called in the Malayan language, Bohon Upas; with it the most poisonous arrows are prepared. Condemned criminals are sent to the tree to procure the poison, and are pardoned if they bring away a certain quantity of it. Not only animals, as quadrupeds, birds, fish, reptiles and vermin, but vegetables of all kinds are said to be destroyed by the effluvia of this noxious tree: so that in a district of twelve or fourteen miles round it, the face of the earth is quite barren, strewed with the skeletons of men and other animals; affording a scene of melancholy, beyond what poets have described, or painters delineated." Mr. Leschenault, by bringing with him a branch and leaves of the Upas tree, has put an end to these poetical fictions.

Doctor Delile and Magendie, having fully ascertained the action of the *Upas ticuti, nux vomica* and *Ignatia amara*, on the spinal marrow, are of opinion, that they may be employed as useful remedies in palsy, and other diseases, which are occasioned by an atony of the spinal marrow, as they powerfully stimulate all the muscles, which receive their nerves from that important organ.

Paris, August 12*th*, 1809.

To the Proprietors of the Belfast Magazine.

IN your Magazine for December, 1812, your correspondent Marcellus writes on Music, with a degree of enthusiasm, which is very natural to the youthful mind, on looking merely at one side of the question; but as the "animated no," so finely described by Cowper in his Task, has a tendency to make a person more minutely examine the principles on which he founds his judgment, I beg leave to make some remarks on the subject of music.

I willingly admit, that music is a pleasing and delightful amusement, but I think there is great danger of attaching too much importance to it, and of suffering it to engross too much time and attention. In order that a person may excel in music, some hours every day must be devoted to practising, and life is too short to permit us to lose much time in trifling pursuits. It may be said, that the mind must be occupied, and that a little amusement is very allowable; but surely there are few persons who would not feel more true rational pleasure, after having spent their leisure hours in instructive reading, than if they had employed themselves in hearing the most delightful music.

I think Marcellus is too severe in his censure on those who disapprove of music. He brands them with the names of "prodigies of nature," "astonishing miracles of dulness and stupidity," and then quotes Shakespear to prove, that "this extraordinary want of sensibility is characteristic of moral depravity." Although Shakespear should tell us, that

> ...."He that is not mov'd
> By the concord of sweet sounds; him trust not,
> Nature has form'd him for the blackest deeds:"

or Lavater in his Aphorisms on man, should say, "Keep three paces distant from him who hates music," I will still maintain my opinion, that it is possible to disapprove of music, and yet to possess every amiable quality that adorns and dignifies human nature. My opinion is not merely theoretical, for I have the happiness of considering as my best and most valued friend, a gentleman, who disapproves of music, not because he has any cynical asperity in his disposition, but because he thinks, music has "an evident tendency to enervate the mind," and that "there are higher and more important employments for beings such as man."

It is very erroneous, in expressing an opinion on any subject, to condemn a person, because he may happen to form a different opinion, and we should be equally careful, not to make one general rule, by which to judge of all mankind. Marcellus has an undoubted right to admire music, but he should permit others to form a different opinion, without branding them with opprobious epithets.

PORCIA.